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ABSTRACT

This analysis covers tasks performed by an insulator, an occupational title some provinces and territories of Canada have also identified as heat and frost insulator. A guide to analysis discusses development, structure, and validation method; scope of the occupation; trends; and safety. To facilitate understanding the nature of the occupation, work performed is divided into the following categories: (1) blocks, the largest divisions in the analysis that reflect a distinct operation relevant to the occupation; (2) tasks, the distinct activities that in combination make up the logical and necessary steps the worker is required to perform to complete a specific assignment in a block; and (3) sub-tasks, the smallest divisions into which it is practical to subdivide any work activity and that in combination fully describe all duties constituting a task. Other components of a task are trends, related components, tools and equipment, and supporting knowledge and abilities. Each sub-task is accompanied by results of a validation by all provinces/territories. The 6 blocks, including 31 tasks, are occupational skills; industrial application; commercial application; asbestos abatement; spraying insulation materials; and fire stopping and smoke seals. Appendixes include a list of tools and equipment; glossary; blocks and tasks weighting; and task profile chart. (YLB)

Occupational Analyses Series

Insulator (Heat and Frost)

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Calorifugeur/calorifugeuse
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The Canadian Council of Directors of Apprenticeship (CCDA) recognizes this occupational analysis as the national standard for the occupation of insulator (heat and frost).

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OTHER RELATED OCCUPATIONAL TITLES

This analysis covers tasks performed by an insulator whose occupational title has been identified by some provinces and territories of Canada under the following names:

- Heat and Frost Insulator
- Insulator

LIST OF PUBLISHED OCCUPATIONAL ANALYSES *

TITLE	NOC** Code
Appliance Service Technician (1997)	7332
Aquaculture Technician (1977)	2221
Arts Administrator (1989)	0114
Automotive Painter (1995)	7322
Automotive Service Technician (1998)	7321
Automotive Technician - Automatic Transmission (1990)	7321
Automotive Technician - Electrical/Electronics (1992)	7321
Automotive Technician - Engine Repair and Fuel Systems (1989)	7321
Automotive Technician - Front-End (1989)	7321
Automotive Technician - Manual Transmission, Driveline and Brakes (1990)	7321
Aviation Machinist (1994)	7231
Baker (1997)	6252
Blaster (Surface) (1987)	7372
Boilermaker (1994)	7262
Bricklayer (2000)	7281
Cabinetmaker (2000)	7272
Carpenter (1998)	7271
Cement Finisher (1995)	7282
Construction Electrician (1994)	7241
Cook (1997)	6242
Electrical Rewind Mechanic (1999)	7333
Electronics Technician - Consumer Products (1997)	2242
Electronics Technician Vol. I (1986) (Video Equipment)	2242
Electronics Technician Vol. II (1986) (Audio Equipment)	2242

* Red Seal analyses are indicated in bold

** National Occupational Classification

Electronics Technician Vol. III (1986) (Computer Equipment)	2242
Electronics Technician Vol. IV (1986) (Office Equipment)	2242
Electronics Technician Vol. VI (1986) (Communication Equipment)	2242
Electronics Technician Vol. VII (1986) (Signaling Equipment)	2242
Electronics Technician Vol. VIII (1986) (Navigation Equipment)	2242
Electronics Technician Vol. IX (1986) (Video Game Equipment)	2242
Electronics Technician Vol. X (1987) (CADD Equipment)	2242
Electronics Technician Vol. XI (1987) (CAM Equipment)	2242
Electronics Technician Vol. XII (1987) (Robotics Equipment)	2242
Electronics Technician Vol. XIII (1987) (Biomedical and Laboratory Equipment)	2242
Electronics Technician Vol. XIV (1987) (Industrial Process-Control Equipment)	2243
Farm Equipment Mechanic (2000)	7312
Floorcovering Installer (1997)	7295
Glazier (1994)	7292
Hairstylist (1997)	6271
Heating (Gas and Oil) Servicer - Commercial and Industrial (1978)	7331
Heavy Duty Equipment Mechanic (1998)	7312
Heavy Equipment Operator (1983)	7421
Industrial Electrician (1997)	7242
Industrial Instrument Mechanic (2000)	2243
Industrial Mechanic (Millwright) (1999)	7311
Insulator (Heat and Frost) (2000)	7293
Ironworker (Generalist) (1993)	7264
Lather (Interior Systems Mechanic) (1994)	7284

Logistics (1992)	0713
Machinist (1998)	7231
Major Electrical Appliance Repairer (1984)	7332
Mobile Crane Operator (1997)	7371
Motorcycle Mechanic (1995)	7334
Motor Vehicle Body Repairer (Metal and Paint) (1997)	7322
New Home Builder and Residential Renovation Contractor (1992)	0712
Oil Burner Mechanic (1997)	7331
Painter and Decorator (2000)	7294
Partsperson (1995)	1472
Plumber (1996)	7251
Power Engineer (1997)	7351
Powerline Technician (1996)	7244
Recreation Vehicle Mechanic (2000)	7383
Refrigeration and Air Conditioning Mechanic (1997)	7313
Roofer (1997)	7291
Sheet Metal Worker (1997)	7261
Sprinkler System Installer (1995)	7252
Steamfitter-Pipefitter (1996)	7252
Steel Fabricator (Fitter) (1994)	7263
Tool and Die Maker (1997)	7232
Truck-Trailer Repairer (1994)	7321
Truck and Transport Mechanic (2000)	7321
Welder (1996)	7265

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FOREWORD

The first National Conference on Apprenticeship in Trades and Industries, held in Ottawa in 1952, recommended that the federal government be requested to co-operate with provincial apprenticeship committees and officials in preparing analyses of a number of skilled occupations. To this end, Human Resources Development Canada sponsors a program, under the guidance of the Canadian Council of Directors of Apprenticeship (CCDA), to develop a series of occupational analyses.

The Occupational Analysis Program has the following objectives:

- to identify and group the tasks performed by skilled workers in particular occupations;
- to identify those tasks that are performed by skilled workers in every province and territory;
- to develop instruments for use in the preparation of interprovincial standards "Red Seal" examinations and curricula for training leading to the certification of skilled workers;
- to facilitate the mobility, in Canada, of trainees and skilled workers;
- to supply employers and employees, and their associations, industries, training institutions and governments with analyses of the tasks performed in particular occupations.

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GUIDE TO ANALYSIS

DEVELOPMENT OF ANALYSIS

A draft analysis is developed by a knowledgeable consultant who, with the assistance of a committee of industry experts in the field, identifies all the tasks performed in the occupation.

The draft is then assigned to occupational analysts at Human Resources Development Canada for translation and then returned to the consultant for review to ensure conformity with the nationally approved format.

The consultant will then forward a copy of this analysis to provincial/territorial authorities for validation by specialists in the field. Their recommendations are assessed and incorporated into the final draft which also includes the identification of the common core tasks performed in the occupation.

The occupational analysis is published in both official languages.

STRUCTURE OF ANALYSIS

To facilitate the understanding of the nature of the occupation, the work performed is divided into the following divisions:

- A. **BLOCK** - is the largest division within the analysis and reflects a distinct operation relevant to the occupation.
- B. **TASK** - is the distinct activity that, combined with others, makes up the logical and necessary steps the worker is required to perform to complete a specific assignment within a "BLOCK".
- C. **SUB-TASK** - is the smallest division into which it is practical to subdivide any work activity and, combined with others, fully describes all duties constituting a "TASK".

Supporting Knowledge & Abilities

The element of skill and knowledge that an individual must acquire to adequately perform the task is identified under this heading.

Trends

Any shifts or changes in technology which affects the block are identified under this heading.

Related Components

All components of a specified task being undertaken by the insulator are identified under this heading.

Tools and Equipment

All tools and equipment necessary for the insulator to complete a task are identified under this heading.

VALIDATION METHOD

At the request of the Canadian Council of Directors of Apprenticeship (CCDA), the Standardization SubCommittee developed a method for the validation of the national Red Seal occupational analyses.

A draft of the analysis is sent to all provinces/territories for validation. Each jurisdiction rates the sub-tasks and applies percentage ratings to blocks and tasks. This method for the validation of the national occupational analyses identifies common core tasks across Canada for a specific occupation. This feature facilitates the weighting of the Interprovincial Red Seal examinations.

DEFINITIONS

YES:	the sub-task is performed by workers in the occupation in a specific jurisdiction.
NO:	the sub-task is not performed by workers in the occupation in a specific jurisdiction.
BLOCK %:	the average number of questions (items), derived from the collective decision made by workers within the occupation from all areas of Canada, which will be placed on an interprovincial examination to assess each block of the analysis.
TASK %:	the average number of questions (items), derived from the collective decision made by workers within the occupation from all areas of Canada, which will be placed on an interprovincial examination to assess each task of the analysis.
NV:	<u>Not Validated</u> by a province/territory.
ND:	<u>Not Designated</u> in a province/territory.

PROVINCIAL/TERRITORIAL ABBREVIATIONS

NF:	Newfoundland and Labrador
NS:	Nova Scotia
PE:	Prince Edward Island
NB:	New Brunswick
QC:	Quebec
ON:	Ontario
MB:	Manitoba
SK:	Saskatchewan
AB:	Alberta
BC:	British Columbia
NT:	Northwest Territories
YK:	Yukon

COMMON CORE

The criteria for determining common core are dependant on the performance of sub-tasks. If 70 percent of the responding jurisdictions (excluding NVs and NDs) perform the sub-task, it shall be considered common core.

Interprovincial Red Seal examinations are based on the common core identified through this validation process. This process identifies what will be assessed through the interprovincial examination.

BLOCKS AND TASKS WEIGHTING (APPENDIX "C")

This appendix represents the block and task percentages as submitted by each jurisdiction.

Each jurisdiction, with the use of a provincial/territorial occupational advisory committee, validates the content, places percentages on blocks and tasks, and indicates whether or not the sub-tasks are performed by the skilled workers within the occupation. The results of this exercise are submitted to the consultant who then analyzes the data and develops this appendix which provides the individual jurisdictional validation results as well as the national averages of all responses.

PIE CHART (APPENDIX "D")

The graph depicts the national percentages assigned to blocks in the analysis.

SCOPE OF THE INSULATOR (HEAT AND FROST) OCCUPATION

The heat and frost insulator specializes in the installation and maintenance of insulation systems, for the conservation of energy and the control of the environment in buildings and premises requiring temperature control, heat transfer, sound barriers, fire protection and asbestos abatement.

Heat and frost insulating includes the manufacturing, fabricating, assembling, moulding, handling, erecting, spraying, pouring, mixing, hanging, preparing, applying, adjusting, altering, repairing, dismantling, reconditioning, testing, and maintaining of insulating materials and systems used in this trade.

The work of the insulator encompasses all facets of the trade, such as handling or distributing insulating materials on job premises; operating equipment and tools of the trade; applying pipe and boiler coverings; insulating hot and cold surfaces, ducts, flues, and all protective coverings required on insulation materials; erecting scaffolding; and, conducting asbestos abatement.

The following are some of the requirements for persons who work as heat and frost insulators:

- mandatory wearing of safety equipment including supplied or filtered air breathing apparatus and full-face mask in the removal of asbestos insulation;
- working in confined spaces or in areas difficult to access;
- handling of materials, such as fibreglass, cellulose, rock wool, mineral wool, mastics, foams, etc.;
- working in varying and/or extreme temperatures (cold & heat);
- working in environments where limits of exposure are monitored; and,
- working out of town and/or in isolated areas, such as northern regions.

OCCUPATIONAL OBSERVATIONS[□]

The heat and frost insulation trade is a constantly changing technology in North America. Twenty to thirty years ago, insulation was more of an afterthought on many projects; only where conditions made it absolutely necessary was insulation applied.

On high and medium temperature installations, the majority of the materials were asbestos based whereas cork was used predominantly for low temperature work or cryogenics. The finishing materials for indoor applications consisted mainly of asbestos cement coatings with canvas or asbestos cloth jacketing. The installations exposed to the elements were usually finished or protected by a reinforced mastic or a roofing felt cover. These are some of the reasons why the trade was not demanding or diversified, and did not require the in-depth knowledge as it does today.

In today's age of high technology, the changes in this trade are immense due to the increased knowledge in environmental protection, energy conservation, and safety and health hazards. Since asbestos is a totally banned product, a whole myriad of new products are now on the market. For jacketing purposes, mastics, roofing felt, asbestos cloth and, for a large part, canvas covering have been replaced. Today, heat and frost insulators use plastics, laminates, metals, such as stainless steel, aluminum, galvanized steel or coated steel for jacketing fabrication. These materials require extensive knowledge in drafting, layout and fabricating procedures. To be economically viable, one needs extensive knowledge in the make-up and behaviour of the material, as well as the development of patterns best suited for the job at hand. It is a must for today's heat and frost insulators to have a good understanding of geometric shapes and their application in the fabrication on the job site.

With the importance given to the environment, new techniques and materials are a steady occurrence in the industry, such as acoustic insulation, and there is a need to train insulators to meet the requirement. It is a prerequisite to be able to adapt to a given situation and have the ability to specialize in the required task. Upgrading and training in the use of new tools and equipment is absolutely necessary to facilitate the large variety of jacketing fabrications and insulation applications. Fire stopping and smoke seal installations are constantly being improved, and the mastering of this discipline is one of utmost importance.

In summary, not only must the heat and frost insulators be highly skilled craftspersons, they must also be willing to adapt to change, adopt new techniques and retrain when necessary. It is essential to be as well versed in the trade as possible. Wherever it is to the industry's advantage, heat and frost insulators should specialize and acquire the skills required to perform the job successfully.

[□] Extract from: Block Release Program for Heat and Frost Insulator trade - N.B.

SAFETY

Safe working procedures and conditions, accident prevention and the preservation of health are of primary importance to the industry in Canada. These responsibilities are shared and require the joint efforts of government, employers and employees. It is imperative that all parties become aware of circumstances which may lead to injury or harm. Safe learning experiences and environments can be created by controlling the variables and behaviours that may contribute to cause an accident or injury.

It is generally recognized that a safety-conscious attitude and work practices contribute to a healthy, safe and accident-free working environment.

It is imperative to apply and be familiar with the Occupational Health and Safety Act and Regulations. As well, it is essential to determine workplace hazards and take measures to protect oneself, co-workers, the public and the environment.

As safety education is an integral part of a training in all jurisdictions, personal safety practices are not recorded in this document. However, the technical safety aspect relating to each task and sub-task are included throughout this analysis.

ANALYSIS

BLOCK A
OCCUPATIONAL SKILLS

Trends: *None identified.*

Task 1 Determines administrative requirements.

Related Components: None identified.
 Materials: Specifications, drawings.

Tools and Equipment: Scale ruler, calculator.

Sub-task

1.01 Interprets specifications and drawings. Supporting Knowledge & Abilities

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV
					1.01.01		knowledge of drawing symbols and abbreviations				
					1.01.02		knowledge of organization of drawings				
					1.01.03		knowledge of types of drawings				
					1.01.04		knowledge of health and safety regulations				
					1.01.05		ability to read schedules				
					1.01.06		ability to interpret information/specifications				
					1.01.07		ability to use a scale rule				

Sub-task**1.02 Sets work schedules.****Supporting Knowledge & Abilities**

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	no	yes	yes	NV	NV

1.02.01 knowledge of scope of work

1.02.02 knowledge of release dates and target dates

1.02.03 ability to organize and comply with schedule

Sub-task**1.03 Determines labour requirements.****Supporting Knowledge & Abilities**

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	no	yes	yes	NV	NV

1.03.01 knowledge of scope of work

1.03.02 knowledge of local union agreements

1.03.03 knowledge of labour hours as per specifications

1.03.04 knowledge of available workforce

1.03.05 ability to select required qualified personnel

Sub-task**1.04 Completes documents and records as required.****Supporting Knowledge & Abilities**

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	no	yes	yes	NV	NV

1.04.01 knowledge of site requirements

1.04.02 knowledge of required documents

Supporting Knowledge & Abilities

- 1.04.03 knowledge of Occupational Health and Safety Act applicable to job
- 1.04.04 ability to maintain up-to-date and accurate records, journals and procedures

Sub-task

1.05 Calculates required quantities of materials.

Supporting Knowledge & Abilities

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV

- 1.05.01 knowledge of imperial system
- 1.05.02 knowledge of metric system
- 1.05.03 knowledge of general mathematics
- 1.05.04 ability to calculate area, volume and linear footage
- 1.05.05 ability to interpret drawings and specifications
- 1.05.06 ability to convert from one measurement system to another, i.e., metric, imperial

Sub-task

1.06 Orders materials.

Supporting Knowledge & Abilities

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	no	yes	yes	NV	NV

- 1.06.01 knowledge of types of materials required
- 1.06.02 knowledge of required quantities, sizes and thickness of materials

Supporting Knowledge & Abilities

- | | |
|---------|---|
| 1.06.03 | ability to calculate required quantities of materials |
| 1.06.04 | ability to select materials according to specifications |
| 1.06.05 | ability to interpret and provide MSDS (Material Safety Data Sheets) |

Task 2 Determines production requirements.

Related Components: Scaffolding, personal protective equipment.
Materials: Specifications, drawings, contract.

Tools and Equipment: Calculator.

Sub-task

2.01 Determines required tools and equipment.

Supporting Knowledge & Abilities

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>
yes	yes	yes	NV	yes

<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	ND	yes	yes	yes	NV	NV

- | | |
|---------|--|
| 2.01.01 | knowledge of required safety equipment |
| 2.01.02 | knowledge of required personal protective equipment |
| 2.01.03 | knowledge of scope of work |
| 2.01.04 | ability to assemble and operate temporary work platform |
| 2.01.05 | ability to assess operating efficiency of safety and personal protective equipment |

Sub-task**2.02 Erects scaffolding.****Supporting Knowledge & Abilities**

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	no	yes	NV	NV

2.02.01 knowledge of access and egress requirements

2.02.02 ability to assemble work platform

2.02.03 ability to assess safety of scaffolding

Sub-task**2.03 Arranges for pre-fabrication of materials.****Supporting Knowledge & Abilities**

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV

2.03.01 knowledge of required quantities, sizes and thickness of pre-fabricated materials

2.03.02 ability to take accurate measurements

2.03.03 ability to interpret material charts

2.03.04 ability to schedule material ordering

Task 3 Determines site specific requirements.

Related Components:

None identified.

Materials: Specifications, drawings, contract documents.

Tools and Equipment:

None identified.

Sub-task**3.01 Determines required orientation programs.****Supporting Knowledge & Abilities**

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	no	yes	yes	NV	NV

- | | |
|---------|---|
| 3.01.01 | knowledge of health and safety specifications |
| 3.01.02 | knowledge of on-site safety personnel |
| 3.01.03 | knowledge of client's policies and procedures |
| 3.01.04 | ability to interpret job documentation |

Sub-task**3.02 Determines required safety training.****Supporting Knowledge & Abilities**

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	no	yes	yes	NV	NV

- | | |
|---------|--|
| 3.02.01 | knowledge of client's policies and procedures |
| 3.02.02 | knowledge of companies' policies and procedures |
| 3.02.03 | knowledge of job specifications |
| 3.02.04 | knowledge of type of equipment |
| 3.02.05 | knowledge of applicable safety regulations |
| 3.02.06 | ability to comply with all regulations, policies and procedures in the workplace |

Sub-task**3.03** **Determines site specific
access hours and location.****Supporting Knowledge & Abilities**

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	no	yes	yes	NV	NV

3.03.01 knowledge of pre-determined work hours

3.03.02 knowledge of collective agreement

3.03.03 ability to access information

Sub-task**3.04** **Identifies required
approvals.****Supporting Knowledge & Abilities**

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	no	yes	yes	NV	NV

3.04.01 knowledge of required approvals

3.04.02 knowledge of types of approval

3.04.03 ability to access information

Sub-task**3.05** **Obtains required permits.****Supporting Knowledge & Abilities**

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV

3.05.01 knowledge of location and placement of permits

3.05.02 knowledge of purpose of various permits

3.05.03 knowledge of content of permits

3.05.04 ability to interpret permits

Sub-task**3.06 Determines required work facilities.****Supporting Knowledge & Abilities**

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	no	yes	yes	NV	NV

- | | |
|---------|---|
| 3.06.01 | knowledge of required facilities for job |
| 3.06.02 | knowledge of collective agreements, labour standards legislation |
| 3.06.03 | knowledge of location of first aid stations and emergency telephone numbers |
| 3.06.04 | knowledge of emergency evacuation procedures |
| 3.06.05 | ability to make arrangements for required facilities |
| 3.06.06 | ability to read site plan |

Task 4 Checks substrate for readiness.

Related Components: Piping, duct work, tanks, vessels and surfaces to be insulated.
Materials: None identified.

Tools and Equipment: None identified.

Sub-task**4.01 Accesses substrate.****Supporting Knowledge & Abilities**

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV

- | | |
|---------|---|
| 4.01.01 | knowledge of method of accessibility |
| 4.01.02 | knowledge of required equipment |
| 4.01.03 | knowledge of proper erection of scaffolding |

Supporting Knowledge & Abilities

4.01.04	knowledge of working procedures, i.e., confined space, etc.
4.01.05	ability to develop work procedures, if required
4.01.06	ability to operate elevated work platforms
4.01.07	ability to comply with health and safety regulations
4.01.08	ability to comply with clients' policies

Sub-task

4.02 Inspects substrate.

Supporting Knowledge & Abilities

<u>NF</u> yes	<u>NS</u> yes	<u>PE</u> yes	<u>NB</u> NV	<u>QC</u> yes	<u>ON</u> yes	<u>MB</u> ND	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> NV	<u>YK</u> NV
					4.02.01		knowledge of visual inspection procedures				
					4.02.02		knowledge of types of substrate				
					4.02.03		knowledge of location of substrate				
					4.02.04		knowledge of types of obstructions/irregularities				
					4.02.05		knowledge of required remedial action				
					4.02.06		ability to identify and respond to irregularities and obstructions				

Sub-task

4.03 Checks for release and approvals.

Supporting Knowledge & Abilities

<u>NF</u> yes	<u>NS</u> yes	<u>PE</u> yes	<u>NB</u> NV	<u>QC</u> yes	<u>ON</u> yes	<u>MB</u> ND	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> NV	<u>YK</u> NV
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Supporting Knowledge & Abilities

- 4.03.01 knowledge of release procedures (authorized personnel)
- 4.03.02 ability to follow release procedures

Task 5 Cleans up site after jobs.

Related Components:

None identified.
Materials: None identified.

Tools and Equipment:

Brooms, vacuum cleaner, bins, shovels, scrapers, drop cloths.

Sub-task

5.01 Disposes of materials.

Supporting Knowledge & Abilities

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV

- 5.01.01 knowledge of disposal procedures
- 5.01.02 knowledge of required equipment
- 5.01.03 ability to dispose of materials according to regulations

Sub-task

5.02 Inspects site.

Supporting Knowledge & Abilities

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV

- 5.02.01 knowledge of site specific clean-up standards
- 5.02.02 knowledge of inspection procedures and criteria

Supporting Knowledge & Abilities

- | | |
|---------|---|
| 5.02.03 | ability to determine when site clean-up is required |
| 5.02.04 | ability to clean up site to standard |
| 5.02.05 | ability to document clean-up |

BLOCK B

INDUSTRIAL APPLICATION

Trends: Greater need for qualified people. Need for continuous training of existing workforce. Greater increase of safety demands. Introduction of computer generated layout programs.

Task 6 Insulates for thermal applications.

Related Components:

Piping, boilers, tanks, vessels, duct work, breechings, chillers, precipitators, turbines, heat exchangers, pumps, fans, fittings, cold boxes.

Materials: Fiberglass, mineral wool, calcium silicate, duct wrap, foamglass, polyurethane, urethane, ceramic fibre, polystyrene, styrofoam, rubber, cork, elastomeric insulation, wire, bands, string, staples, filament tape, composite panels (i.e. Utilidor).

Tools and Equipment:

Standard tool kit.

Sub-task

6.01 Insulates for hot applications.
(213 to 1500 E F)

Supporting Knowledge & Abilities

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV
					6.01.01		knowledge of suitable insulation materials and finishes				
					6.01.02		knowledge of types of fastening systems				
					6.01.03		knowledge of insulation methods for anchors and guides				
					6.01.04		knowledge of types of anchors and guides				
					6.01.05		knowledge of contraction and expansion				
					6.01.06		ability to maintain operating temperature to prevent product solidification				
					6.01.07		ability to insulate for personal protection				
					6.01.08		ability to develop layouts				

Sub-task

6.02 Insulates for moderate applications.
(70 to 212E F)

Supporting Knowledge & Abilities

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV
					6.02.01		knowledge of suitable insulation materials and finishes				
					6.02.02		knowledge of types of fastening systems				
					6.02.03		ability to develop layouts				
					6.02.04		ability to apply and install fastening systems				

Sub-task**6.03 Insulates for cold applications.
(30 to 69E F)****Supporting Knowledge & Abilities**

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV

- | | |
|---------|---|
| 6.03.01 | knowledge of suitable insulation materials and finishes |
| 6.03.02 | knowledge of types of fastening systems |
| 6.03.03 | knowledge of required vapour barriers |
| 6.03.04 | knowledge of required hangers and saddles |
| 6.03.05 | ability to apply and maintain vapour barriers |
| 6.03.06 | ability to develop layouts |
| 6.03.07 | ability to fabricate moulds using insulation materials |
| 6.03.08 | ability to select insulation based on properties of systems |
| 6.03.09 | ability to apply and install fastening systems |

Sub-task**6.04 Insulates for low temperature applications.
(-149 to -29E F)****Supporting Knowledge & Abilities**

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV

- | | |
|---------|---|
| 6.04.01 | knowledge of suitable insulation materials and finishes |
| 6.04.02 | knowledge of types of fastening systems |
| 6.04.03 | knowledge of required vapour barriers |

Supporting Knowledge & Abilities

6.04.04	knowledge of required hangers and saddles
6.04.05	ability to set up for pour-in-place insulation
6.04.06	ability to develop layouts
6.04.07	ability to apply and maintain integrity of vapour barriers
6.04.08	ability to compact materials as per plans and specifications
6.04.09	ability to mix and apply or pour suitable materials
6.04.10	ability to apply and install fastening systems

Sub-task

**6.05 Insulates for cryogenic systems.
(-150 to -459E F)**

Supporting Knowledge & Abilities

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	no	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV
					6.05.01		knowledge of suitable insulation materials and finishes				
					6.05.02		knowledge of types of fastening systems				
					6.05.03		knowledge of required vapour barriers				
					6.05.04		knowledge of required hangers and saddles				
					6.05.05		knowledge of double-shell vessels				
					6.05.06		ability to set up for pour-in-place insulation				
					6.05.07		ability to develop layouts				
					6.05.08		ability to apply and maintain integrity of vapour barriers				

Supporting Knowledge & Abilities

- 6.05.09 ability to compact materials as per plans and specifications
- 6.05.10 ability to mix and apply or pour suitable materials

Sub-task

6.06 Applies insulation over steam and electrical traced systems.

Supporting Knowledge & Abilities

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV
					6.06.01		knowledge of EHT (Electrical Heat Tracing) systems				
					6.06.02		knowledge of heat transfer cement				
					6.06.03		knowledge of steam tracing systems				
					6.06.04		knowledge of suitable materials				
					6.06.05		ability to select oversized material				
					6.06.06		ability to install oversize material				
					6.06.07		ability to cut fitting using oversized material				
					6.06.08		ability to install heat transfer cement				
					6.06.09		ability to read and interpret drawings and specifications				

Task 7 Fabricates insulation for tanks, vessels and fittings.

Related Components: Tanks, vessels, equipment, fittings.
Materials: All insulating materials, sealants, adhesives, bands and seals, skewers, wire.

Tools and Equipment: Standard tool kit, band saw, mitre saw.

Sub-task

7.01 Takes required measurements.

Supporting Knowledge & Abilities

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV

7.01.01	knowledge of equipment to be measured
7.01.02	knowledge of required measurements such as area and length
7.01.03	knowledge of geometry, i.e. required mathematical formula
7.01.04	ability to measure accurately
7.01.05	ability to incorporate insulation thickness into layout calculations

Sub-task

7.02 Lays out materials for fittings.

Supporting Knowledge & Abilities

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV

7.02.01	knowledge of geometry and general mathematics
7.02.02	knowledge of types and function of fittings
7.02.03	ability to develop layout patterns

Supporting Knowledge & Abilities

7.02.04 ability to apply layout patterns for materials and jacketing

Sub-task

7.03 Applies adhesives or fastening systems.

Supporting Knowledge & Abilities

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV

7.03.01	knowledge of types of adhesives
7.03.02	knowledge of adhesive application procedures
7.03.03	knowledge of expansion springs
7.03.04	knowledge of fastening systems
7.03.05	knowledge of installation procedures of fastening systems
7.03.06	knowledge of potential hazards of various adhesives
7.03.07	knowledge of safety procedures
7.03.08	ability to install expansion springs
7.03.09	ability to respond to the hazards of various adhesives
7.03.10	ability to select fastening systems and adhesives

Sub-task

7.04 Installs fabricated insulation fittings.

Supporting Knowledge & Abilities

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV

Supporting Knowledge & Abilities

7.04.01	knowledge of geometry and basic mathematics
7.04.02	knowledge of fastening systems
7.04.03	knowledge of required tools
7.04.04	knowledge of types of adhesives
7.04.05	ability to layout and cut mitres
7.04.06	ability to use required tools
7.04.07	ability to select and apply adhesives and fasteners

Task 8 Fabricates removable covers.

Related Components:

Valves, pumps, vessels, instruments, flanges, turbines, manways, elbows, fittings, expansion joints, piping.

Materials: Aluminum, stainless steel, galvanized metal, silicone cloth, steel knit mesh, staples, thread, fasteners, ceramic fibres, fiberglass mat, velcro, hog rings.

Tools and Equipment:

Standard tool kit, sewing machine, beader, crimper, brake, lock former, easy edger, rollers, shears, electric shears, t-square, hog ringer, pneumatic tools, stapler.

Sub-task

8.01 Takes required measurements.

Supporting Knowledge & Abilities

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV

8.01.01	knowledge of required measurements
8.01.02	ability to use measuring tools
8.01.03	ability to take accurate measurements

Supporting Knowledge & Abilities

8.01.04 ability to incorporate insulation thickness into layout calculations

Sub-task

8.02 Develops layout.

Supporting Knowledge & Abilities

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV

8.02.01 knowledge of geometry and basic mathematics

8.02.02 knowledge of specifications

8.02.03 knowledge of layout requirements

8.02.04 knowledge of fastening systems

8.02.05 knowledge of water sheds

8.02.06 knowledge of sewing procedures

8.02.07 ability to incorporate ease of removal

8.02.08 ability to draw field sketches based on applications

8.02.09 ability to incorporate jacketing materials with insulation

Sub-task

8.03 Assembles materials.

Supporting Knowledge & Abilities

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV

8.03.01 knowledge of sequence of assembly

8.03.02 ability to use sewing equipment

8.03.03 ability to hand sew

8.03.04 ability to use assembly tools

Task 9 Installs protective coverings.

Related Components: Piping, boilers, tanks, vessels, duct work, breechings, chillers, precipitator, turbines, heat exchangers, pumps, fans, fittings.
 Materials: Aluminum, stainless steel, mastic, fiberglass cloth, canvas, PVC jackets, pre-formed fiberglass jackets, bands, screws, caulking, seals, wheat paste, lagging adhesive, galvanized metal, rivets, PVC solvents.

Tools and Equipment: Standard tool kit, beader, crimper, lock former, easy edger, shears, forming roller, notchers, metal brake, electric shears, stud welder, electric drill, rivet gun, band tightener, roller, durodyne gun, KSM (pin) welder.

Note: Wheat paste not permitted in Ontario.

Sub-task

9.01 Fabricates finishing materials.

Supporting Knowledge & Abilities

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV

- | | |
|---------|--|
| 9.01.01 | knowledge of mathematics and geometry |
| 9.01.02 | knowledge of pattern development |
| 9.01.03 | knowledge of finishing materials |
| 9.01.04 | knowledge of lap seams and safety edges |
| 9.01.05 | ability to take proper measurements for final appearance and fit |
| 9.01.06 | ability to use fabricating tools and equipment |
| 9.01.07 | ability to determine size and thickness of cladding material |
| 9.01.08 | ability to build appropriate seals |
| 9.01.09 | ability to develop water sheds |

Sub-task**9.02 Installs fastening systems.****Supporting Knowledge & Abilities**

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV

- | | |
|---------|---|
| 9.02.01 | knowledge of fastening systems including pin and stud welders |
| 9.02.02 | knowledge of all types of adhesives |
| 9.02.03 | ability to properly install banding and seals |
| 9.02.04 | ability to operate pin and stud welders |
| 9.02.05 | ability to apply various types of fastening systems |

Task 10 Applies sealants.*Related Components:*

Insulation surfaces, stainless steel, aluminum, canvas, PVC jackets, glass fab.

Materials: Mastics, contact adhesives, non-contact adhesives, caulking, lagging, welding adhesives, tape sealer.

Tools and Equipment:

Standard tool kit, spraying equipment, caulking gun, roller, spreader.

Sub-task**10.01 Determines application of sealants.****Supporting Knowledge & Abilities**

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV

- | | |
|----------|----------------------------------|
| 10.01.01 | knowledge of purpose of sealants |
| 10.01.02 | knowledge of types of sealants |

Supporting Knowledge & Abilities

10.01.03	knowledge of compatibility of sealants with material
10.01.04	knowledge of climatic conditions for application
10.01.05	ability to apply sealants as per specifications

Sub-task

10.02 Installs reinforcements.

Supporting Knowledge & Abilities

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV

10.02.01	knowledge of types of reinforcements
10.02.02	knowledge of required tools and equipment
10.02.03	knowledge of installation techniques

Task 11 Insulates for refractory applications. (1500 E F +)

Related Components: Boilers, kilns, furnaces, dryers, economizers, cookers, exchangers.
Materials: Ceramic fiber, fire bricks, refractory cement, calcium silicate, diatomaceous/bituminous earth.

Tools and Equipment: Standard tool kit, specialized tools for brick work.

Note: In some jurisdictions, brick work is performed strictly by bricklayers.

Sub-task

11.01 Selects proper insulation system (reflective, castables and cavity).

Supporting Knowledge & Abilities

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV

11.01.01	knowledge of appropriate materials
11.01.02	knowledge of location to be insulated
11.01.03	knowledge of purpose of insulation
11.01.04	knowledge of temperature
11.01.05	knowledge of types of insulation systems

Sub-task

11.02 Applies insulation materials.

Supporting Knowledge & Abilities

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV

11.02.01	knowledge of proper application for refractory
11.02.02	knowledge of required spacing of materials
11.02.03	knowledge of cushioning blankets
11.02.04	knowledge of proper procedures for elimination of thermal shock
11.02.05	ability to build expansion joint during application
11.02.06	ability to install refractory brick work
11.02.07	ability to build and install reflective systems
11.02.08	ability to interpret building codes and specifications

Task 12 Insulates for cryogenic applications. (-150E F to absolute zero)

Related Components:

Piping, tanks, vessels, ducts, breechings, instrumentation, fittings, double shell vessels.

Materials: Foamglass, urethane, styrofoam, perlite, tape, bands and seals, wire, sealants, filament tape, polystyrene, vapour barriers.

Tools and Equipment:

Standard tool kit, blow torch.

Sub-task

12.01 Prepares substrate.

Supporting Knowledge & Abilities

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
no	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV

- 12.01.01 knowledge of required condition of substrate
- 12.01.02 knowledge of hazards of extreme cold
- 12.01.03 ability to verify condition of substrate
- 12.01.04 ability to clean substrate
- 12.01.05 ability to dry substrate

Sub-task

12.02 Applies insulation materials.

Supporting Knowledge & Abilities

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
no	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV

- 12.02.01 knowledge of complete buttering seams and joints during installation
- 12.02.02 knowledge of appropriate fastening systems
- 12.02.03 knowledge of proper installation procedures for materials
- 12.02.04 ability to fabricate contraction joints

Supporting Knowledge & Abilities

- 12.02.05 ability to incorporate contraction joints
- 12.02.06 ability to fabricate moulds using insulation materials
- 12.02.07 ability to make accurate precise cuts

Sub-task

12.03 Applies vapour barriers.

Supporting Knowledge & Abilities

NF NS PE NB QC
no yes yes NV yes

ON MB SK AB BC NT YK
yes ND yes yes yes NV NV

- 12.03.01 knowledge of types of vapour barriers
- 12.03.02 knowledge of purpose and importance of vapour barriers
- 12.03.03 knowledge of application procedures
- 12.03.04 ability to apply and maintain integrity of vapour barriers

Task 13 Installs underground insulating systems.

Related Components:

Piping, expansion loops.
Materials: Calcium sterate, calcium silicate, hydrocarbon granules, fiberglass, foamglass, urethane, granular, pit wrap, PVC (poly vinyl chloride) jacketing, water, mastics, poly, sealants, wire, tape, banding, seals.

Tools and Equipment:

Tamper, blow torch, standard insulation tools, earth moving equipment, shovel, rake.

Sub-task**13.01 Builds forms for trenches.****Supporting Knowledge & Abilities**

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>
yes	yes	yes	NV	yes

<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	ND	yes	yes	yes	NV	NV

- | | |
|----------|---|
| 13.01.01 | knowledge of condition of trench soil |
| 13.01.02 | knowledge of safe work procedures in trenches |
| 13.01.03 | knowledge of required materials |
| 13.01.04 | ability to check safety of trench |
| 13.01.05 | ability to fabricate form as per plans and specifications |
| 13.01.06 | ability to comply with safety regulations for trenches |

Sub-task**13.02 Determines installation system or method.****Supporting Knowledge & Abilities**

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>
yes	yes	yes	NV	yes

<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	ND	yes	yes	yes	NV	NV

- | | |
|----------|---|
| 13.02.01 | knowledge of specifications |
| 13.02.02 | knowledge of application of system |
| 13.02.03 | ability to develop expansion joints and air spacing |

Sub-task**13.03 Applies insulation.****Supporting Knowledge & Abilities**

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>
yes	yes	yes	NV	yes

<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	ND	yes	yes	yes	NV	NV

Supporting Knowledge & Abilities

13.03.01	knowledge of application procedures
13.03.02	knowledge of types of materials
13.03.03	knowledge of waterproof jacketing systems
13.03.04	knowledge of pour in place systems
13.03.05	ability to install and properly seal waterproof jacketing systems

Sub-task

13.04 Applies appropriate backfill.

Supporting Knowledge & Abilities

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	no	yes	NV	NV

13.04.01	knowledge of potential contaminants
13.04.02	knowledge of types of backfill
13.04.03	ability to backfill according to specifications

Task 14 Insulates for sound proofing.

Related Components:

Turbines, mufflers, ducts, piping, generators, jet engines, fans, fittings, pumps, ceilings, walls, natural gas pipelines.
Materials: Fiberglass, lead, mineral wool, Baryfol (barium impregnated foil in rubber mat), lead lined aluminum, cork, caulking, bands, seals, pins, clips, chicken wire, cement.

Tools and Equipment:

Standard tool kit, beader, crimper, lock former, easy edger, shears, forming roller, notchers, metal brake, electric shears, stud welder, electric drill, rivet gun, band tightener, banding tools.

Sub-task**14.01 Insulates natural gas piping. Supporting Knowledge & Abilities**

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV
					14.01.01		knowledge of basics of sound transmission				
					14.01.02		knowledge of suitable materials				
					14.01.03		knowledge of effects sound proofing materials have on sound transmission				
					14.01.04		knowledge of potential safety hazards				
					14.01.05		knowledge of fastening systems				
					14.01.06		ability to install sound proofing materials				
					14.01.07		ability to install materials taking into account site/job conditions				
					14.01.08		ability to incorporate expansion joints				
					14.01.09		ability to identify need for PPE equipment i.e. sound				

Sub-task**14.02 Insulates steam piping. Supporting Knowledge & Abilities**

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV
					14.02.01		knowledge of suitable materials				
					14.02.02		knowledge of potential safety hazards				
					14.02.03		knowledge of fastening systems				
					14.02.04		ability to install sound proofing materials				
					14.02.05		ability to incorporate expansion joints				
					14.02.06		ability to incorporate air spacing				

Sub-task**14.03 Insulates turbine systems.****Supporting Knowledge & Abilities**

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV
					14.03.01		knowledge of suitable materials				
					14.03.02		knowledge of potential safety hazards				
					14.03.03		knowledge of fastening systems				
					14.03.04		ability to install sound proofing materials				
					14.03.05		ability to install materials taking into account job/site conditions				

Task 15 Applies fire proofing materials.*Related Components:*

Exhaust ducts, electrical trays, electrical conduit, hangers, structural steel refuge, areas, public access and egress.
 Materials: Ceramic fibre, mineral wool, calcium silicate, fiberglass, mandolite, banding, stainless steel, cement, seals, pins, tape, washers, corner beads, wires, insulated foam glass, expanded lathe, intumescent systems.

Tools and Equipment:

Standard tool kit, banding tools, stud welder, spray equipment.

Sub-task**15.01 Fireproofs kitchen exhaust ducts.****Supporting Knowledge & Abilities**

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV
					15.01.01		knowledge of plans and specifications				
					15.01.02		knowledge of material specifications and applications				

Supporting Knowledge & Abilities

15.01.03	ability to identify materials
15.01.04	ability to determine method of application
15.01.05	ability to prepare surface for application or installation
15.01.06	ability to prepare materials
15.01.07	ability to protect fire proofing materials

Sub-task

15.02 Fireproofs electrical trays and conduits.

Supporting Knowledge & Abilities

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV
					15.02.01		knowledge of plans and specifications				
					15.02.02		knowledge of material specifications and applications				
					15.02.03		ability to identify materials				
					15.02.04		ability to determine method of application				
					15.02.05		ability to prepare surface for application or installation				
					15.02.06		ability to prepare materials				
					15.02.07		ability to protect fire proofing materials				
					15.02.08		ability to apply fire proofing materials				

Sub-task**15.03 Fireproofs structural components.****Supporting Knowledge & Abilities**

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	no	yes	NV	NV
					15.03.01		knowledge of spray techniques				
					15.03.02		knowledge of required materials				
					15.03.03		knowledge of multi-layer application				
					15.03.04		ability to identify materials				
					15.03.05		ability to determine method of application				
					15.03.06		ability to operate spray equipment				
					15.03.07		ability to prepare surface				
					15.03.08		ability to prepare materials				
					15.03.09		ability to protect fire proofing materials				
					15.03.10		ability to use hand trowel				

BLOCK C**COMMERCIAL APPLICATION**

Trends: Increase in the use of PVC and metal; increase in the use of removable pads; greater need for qualified people; a demand for shorter time frames and higher productivity expectations; increased use of pre-formed fittings; and, a decrease in the use of insulation less than 1 inch.

Task 16 Insulates plumbing systems.

Related Components: Piping, tanks, pumps, fittings, hangers.
Materials: Fiberglass, elastomeric, styrofoam, urethane, staples,
glue, lagging, tape, sealer, screws, contact adhesives, cement.

Tools and Equipment: Standard tool kit.

Sub-task**16.01 Insulates domestic hot water systems. Supporting Knowledge & Abilities**

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV

- | | |
|----------|---|
| 16.01.01 | knowledge of recirculating systems |
| 16.01.02 | knowledge of hot water systems |
| 16.01.03 | ability to interpret drawings and specifications |
| 16.01.04 | ability to apply appropriate insulating materials and protective coatings |
| 16.01.05 | ability to identify domestic hot water systems |

Sub-task**16.02 Insulates domestic cold water systems. Supporting Knowledge & Abilities**

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV

- | | |
|----------|---|
| 16.02.01 | knowledge of cold water systems |
| 16.02.02 | knowledge of types of vapour barriers |
| 16.02.03 | knowledge of vapour barrier requirements |
| 16.02.04 | knowledge of appropriate method to insulate hangers |

Supporting Knowledge & Abilities

16.02.05	ability to interpret drawings and specifications
16.02.06	ability to apply and maintain integrity of vapour barriers
16.02.07	ability to maintain integrity of insulation
16.02.08	ability to apply appropriate insulating materials and protective coatings

Sub-task

16.03 Insulates rain or storm water systems and vents.

Supporting Knowledge & Abilities

<u>NF</u> yes	<u>NS</u> yes	<u>PE</u> yes	<u>NB</u> NV	<u>QC</u> yes	<u>ON</u> yes	<u>MB</u> ND	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> NV	<u>YK</u> NV
					16.03.01	knowledge of rain and storm water systems					
					16.03.02	knowledge of types of vapour barriers					
					16.03.03	knowledge of vapour barriers					
					16.03.04	knowledge of insulation methods of roof hopper					
					16.03.05	knowledge of appropriate method to insulate hangers					
					16.03.06	ability to apply insulation to hangers					
					16.03.07	ability to insulate roof hopper					
					16.03.08	ability to interpret drawings and specifications					

Task 17 Insulates mechanical systems.

Related Components: Piping, boilers, heat exchangers, breechings, mufflers, condensers, tanks, fittings, chillers, hangers, vessels, pumps.
 Materials: Fiberglass, cork, foamglass, calcium silicate, styrofoam, mineral wool, urethane, elastomeric foam, polystyrene, wire, tapes, adhesives, banding, glue, seals, washers.

Tools and Equipment: Standard tool kit, stud welders, foam gun, anchors, strapping tools, drills, grinders, extension cords.

Sub-task

17.01 Insulates steam and condensate systems.

Supporting Knowledge & Abilities

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV
					17.01.01		knowledge of operation of system				
					17.01.02		knowledge of drawings and specifications				
					17.01.03		knowledge of types of hangers, anchors and guides				
					17.01.04		knowledge of contraction and expansion				
					17.01.05		knowledge of suitable insulation materials				
					17.01.06		knowledge of types of fastening systems				
					17.01.07		knowledge of types of anchors and guides				
					17.01.08		knowledge of insulation methods for anchors and guides				
					17.01.09		ability to apply materials and cladding				
					17.01.10		ability to apply materials as per drawings and specifications				

Sub-task**17.02 Insulates chiller and chilled water systems.****Supporting Knowledge & Abilities**

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV
					17.02.01		knowledge of chillers				
					17.02.02		knowledge of types of chilled water systems				
					17.02.03		knowledge of suitable insulation materials				
					17.02.04		knowledge of operation of chillers and chilled water systems				
					17.02.05		knowledge of drawings and specifications				
					17.02.06		knowledge of types of vapour barriers				
					17.02.07		knowledge of vapour barriers requirements				
					17.02.08		knowledge of types of hangers				
					17.02.09		ability to apply and maintain integrity of vapour barriers				
					17.02.10		ability to insulate hangers				
					17.02.11		ability to maintain integrity of insulation				
					17.02.12		ability to install insulation and finishes				
					17.02.13		ability to apply materials as per drawings and specifications				

Sub-task**17.03 Insulates refrigeration systems.****Supporting Knowledge & Abilities**

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV

Supporting Knowledge & Abilities

17.03.01	knowledge of system operation
17.03.02	knowledge of suitable insulation materials
17.03.03	knowledge of drawings and specifications
17.03.04	knowledge of contraction of systems
17.03.05	knowledge of types of vapour barriers
17.03.06	knowledge of vapour barrier requirements
17.03.07	knowledge of types of fastening systems
17.03.08	knowledge of required hangers and saddles
17.03.09	knowledge of required sealants
17.03.10	knowledge of hazardous gases
17.03.11	ability to apply and maintain integrity of vapour barriers
17.03.12	ability to make precision cuts
17.03.13	ability to maintain integrity of insulation
17.03.14	ability to install insulation and finishes

Sub-task

17.04 Insulates boilers and hot water heating systems.

Supporting Knowledge & Abilities

<u>NF</u> yes	<u>NS</u> yes	<u>PE</u> yes	<u>NB</u> NV	<u>QC</u> yes	<u>ON</u> yes	<u>MB</u> ND	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> NV	<u>YK</u> NV
					17.04.01		knowledge of system operation				
					17.04.02		knowledge of drawings and specifications				
					17.04.03		knowledge of breeching				

Supporting Knowledge & Abilities

17.04.04	knowledge of expansion
17.04.05	knowledge of suitable insulation materials
17.04.06	knowledge of types of hangers
17.04.07	knowledge of types of anchors and guides
17.04.08	ability to insulate for personal protection
17.04.09	ability to apply materials as per drawings and specifications

Task 18 Insulates HVAC (heating, ventilation, and air conditioning) systems.

Related Components:

Duct work, plenums, fan housings.

Materials: Fiberglass, styrofoam, elastomeric foams, urethane, corner bead, canvas, lagging, mastic, aluminium, fiberglass cloth, stainless steel, tape, mineral wool, adhesives, pins, washers, wire, chicken wire.

Tools and Equipment:

Standard tool kit, pin gun, stud gun.

Sub-task

18.01 Insulates fresh air and exhaust ducts.

Supporting Knowledge & Abilities

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV

18.01.01	knowledge of system operation
18.01.02	knowledge of drawing and specifications
18.01.03	knowledge of vapour barriers
18.01.04	knowledge of fastening systems and installation methods

Supporting Knowledge & Abilities

18.01.05	knowledge of types of hangers
18.01.06	knowledge of insulation methods for hangers
18.01.07	knowledge of required fastening tools
18.01.08	ability to use and maintain fastening equipment
18.01.09	ability to apply and maintain integrity of vapour barriers
18.01.10	ability to install insulation and finishes

Sub-task

18.02 Insulates supply and return air ducts.

Supporting Knowledge & Abilities

<u>NF</u> yes	<u>NS</u> yes	<u>PE</u> yes	<u>NB</u> NV	<u>QC</u> yes	<u>ON</u> yes	<u>MB</u> ND	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> NV	<u>YK</u> NV
					18.02.01		knowledge of drawing and specifications				
					18.02.02		knowledge of suitable insulation materials				
					18.02.03		knowledge of system operation				
					18.02.04		knowledge of insulation methods for hangers				
					18.02.05		knowledge of hangers				
					18.02.06		knowledge of types of vapour barriers				
					18.02.07		knowledge of vapour barrier requirements				
					18.02.08		knowledge of types of fastening tools				
					18.02.09		knowledge of fastening systems				
					18.02.10		ability to use and maintain fastening equipment				
					18.02.11		ability to apply and maintain integrity of vapour barriers				

Supporting Knowledge & Abilities

- 18.02.12 ability to identify supply and return air ducts
- 18.02.13 ability to install insulation and finishes
- 18.02.14 ability to apply materials as per drawings and specifications

Sub-task

18.03 Insulates plenums.

Supporting Knowledge & Abilities

NF NS PE NB QC
yes yes yes NV yes

ON MB SK AB BC NT YK
yes ND yes yes yes NV NV

- 18.03.01 knowledge of drawing and specifications
- 18.03.02 knowledge of system operation
- 18.03.03 knowledge of suitable insulation materials
- 18.03.04 knowledge of insulation methods for hangers
- 18.03.05 knowledge of types of hangers
- 18.03.06 knowledge of types of vapour barriers
- 18.03.07 knowledge of vapour barriers requirements
- 18.03.08 knowledge of required fastening tools
- 18.03.09 knowledge of fastening systems
- 18.03.10 ability to use and maintain fastening equipment
- 18.03.11 ability to apply and maintain integrity of vapour barriers
- 18.03.12 ability to install insulation and finishes

Sub-task**18.04 Installs insulation for acoustic.****Supporting Knowledge & Abilities**

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV
					18.04.01		knowledge of potential safety hazards				
					18.04.02		knowledge of types of insulation materials				
					18.04.03		knowledge of types of fastening systems				
					18.04.04		knowledge of types of adhesives and application methods				
					18.04.05		knowledge of spray methods for adhesives				
					18.04.06		ability to work in confined space				
					18.04.07		ability to maintain integrity of coatings				
					18.04.08		ability to install insulation and finishes				
					18.04.09		ability to apply materials as per plans and specifications				

Task 19 Insulates fittings.*Related Components:*

Tanks, elbows, valves, unions, tees, reducers, flanges, instrumentation, hangers, expansion joints.

Materials: Fiberglass, styrofoam, cement, foam glass, elastomeric foam, wire, urethane, adhesives, tape, mineral wool, bands.

Tools and Equipment:

Standard tool kit, mitre saw, band saw, mitre chart, sprayer, foam gun.

Sub-task**19.01 Develops layout for fittings.****Supporting Knowledge & Abilities**

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV
					19.01.01		knowledge of geometry and basic mathematics				
					19.01.02		knowledge of required measurements				
					19.01.03		knowledge of layout requirements				
					19.01.04		knowledge of function of fittings				
					19.01.05		ability to take accurate measurements				
					19.01.06		ability to develop layout patterns for material and jacketing				
					19.01.07		ability to use measurement tools				
					19.01.08		ability to incorporate insulation thickness into layout calculations				

Sub-task**19.02 Applies adhesives or fastening systems.****Supporting Knowledge & Abilities**

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV
					19.02.01		knowledge of types of adhesives				
					19.02.02		knowledge of adhesive application procedures				
					19.02.03		knowledge of expansion/contraction springs				
					19.02.04		knowledge of fastening systems				
					19.02.05		knowledge of installation procedures of fastening systems				

Supporting Knowledge & Abilities

- 19.02.06 knowledge of safety procedures
- 19.02.07 ability to comply with safety procedures

Sub-task

19.03 Installs fabricated insulation fittings. Supporting Knowledge & Abilities

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV

- 19.03.01 knowledge of geometry and basic mathematics
- 19.03.02 knowledge of fastening systems
- 19.03.03 knowledge of required tools
- 19.03.04 knowledge of types of cement
- 19.03.05 knowledge of plans and specifications
- 19.03.06 ability to install cement
- 19.03.07 ability to layout and cut mitres
- 19.03.08 ability to use required tools

Task 20 Installs finishing materials.

Related Components:

Piping, duct work, boilers, chillers, hangers, fittings, pumps, valves, vessels, tanks.

Materials: Canvas, PVC, aluminum, stainless steel, fiberglass, cheese cloth, cement, tapes, glass fab, mastics, adhesives, lagging adhesives, staples, bandings, wheat paste, screws, tacks, vapour barriers, all service jacketing, RFFRK jacketing (Reinforced Foiled Flame Retardant Kraft).

Tools and Equipment:

Standard tool kit, beader, crimper, lock former, easy edger, staple gun, shears, forming roller, notchers, metal brake, electric shears, stud welder, electric drill, rivet gun, band tightener, combination machine.

Note:

Wheat paste is not permitted in Ontario.

Sub-task

20.01 Fabricates finishing materials.

Supporting Knowledge & Abilities

<u>NF</u> yes	<u>NS</u> yes	<u>PE</u> yes	<u>NB</u> NV	<u>QC</u> yes	<u>ON</u> yes	<u>MB</u> ND	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> NV	<u>YK</u> NV
					20.01.01	knowledge of mathematics and geometry					
					20.01.02	knowledge of pattern development					
					20.01.03	knowledge of finishing materials					
					20.01.04	knowledge of lap seams and safety edges					
					20.01.05	ability to take proper measurements					
					20.01.06	ability to use fabricating tools and equipment					
					20.01.07	ability to build and install appropriate seals into system					
					20.01.08	ability to develop water sheds					
					20.01.09	ability to apply various finishing materials					

Sub-task

20.02 Installs fastening systems.

Supporting Knowledge & Abilities

<u>NF</u> yes	<u>NS</u> yes	<u>PE</u> yes	<u>NB</u> NV	<u>QC</u> yes	<u>ON</u> yes	<u>MB</u> ND	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> NV	<u>YK</u> NV
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Supporting Knowledge & Abilities

20.02.01	knowledge of fastening systems including pin and stud welders
20.02.02	knowledge of types of adhesives
20.02.03	ability to properly install banding and seals
20.02.04	ability to operate pin and stud welders

Task 21 Insulates for sound proofing.

Related Components:

Walls, ceilings, sound room, air space.

Materials: Canvas, PVC, aluminum, stainless steel, fiberglass, cheese cloth, acoustic lining, styrofoam, cork, lead, fiberglass, barymat.

Tools and Equipment:

Stud gun, standard tool kit, power actuated tools.

Sub-task

21.01 Hangs acoustic panels.

Supporting Knowledge & Abilities

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	no	yes	NV	NV
					21.01.01	knowledge of support systems					
					21.01.02	knowledge of insulating materials					
					21.01.03	knowledge of fastening system					
					21.01.04	ability to install support systems					

Sub-task

21.02 **Installs acoustic panels to
ceilings and walls.**

Supporting Knowledge & Abilities

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	no	yes	NV	NV
					21.02.01		knowledge of fastening systems				
					21.02.02		knowledge of support systems				
					21.02.03		knowledge of insulating materials				
					21.02.04		ability to install support systems				
					21.02.05		ability to fabricate ceiling and wall acoustic panels				

BLOCK D**ASBESTOS ABATEMENT**

Trends: *Continued enforcement of regulations; and, a greater awareness of the hazards of asbestos.*

Task 22 **Determines scope of work.** (unique to this area of the trade)

Related Components: None identified.
Materials: Flash light, sample bottles, sealants.

Tools and Equipment: Personal protective equipment (PPE), knife, scraper, aviation snips.

Sub-task**22.01 Retrieves sample of asbestos for testing. Supporting Knowledge & Abilities**

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV

22.01.01 knowledge of regulations and proper procedures for retrieving sample

22.01.02 knowledge of testing facilities

22.01.03 ability to safely retrieve sample

22.01.04 ability to tag sample

Sub-task**22.02 Determines the applicable rules and regulations. Supporting Knowledge & Abilities**

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV

22.02.01 knowledge of provincial rules and regulations

22.02.02 ability to contact regulatory bodies

22.02.03 ability to contact independent monitoring

Sub-task**22.03 Determines required personal protective equipment. Supporting Knowledge & Abilities**

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV

22.03.01 knowledge of job requirements

Supporting Knowledge & Abilities

22.03.02	knowledge of risk factors
22.03.03	knowledge of safe work practices and procedures
22.03.04	knowledge of regulatory classifications applicable to volume of material
22.03.05	knowledge of types of PPE
22.03.06	ability to properly fit, clean and maintain PPE

Sub-task

22.04 Determines disposal methods and requirements.

Supporting Knowledge & Abilities

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV

22.04.01	knowledge of governmental rules and regulations
22.04.02	knowledge of disposal requirements
22.04.03	ability to coordinate disposal

Task 23 Removes asbestos in high risk conditions.

Related Components:

Asbestos contaminated substrates.
Materials: Polyurethane sheeting, spray glue, lumber, duct tape, staples, disposal bags and ties, encapsulants, lock down material, amending agents, soap, shampoo.

Tools and Equipment:

Standard tool kit, water hoses, showers, scrapers, negative air machine, respirator, drain plugs, temporary lighting, extension cords, HEPA Vacuum cleaner, scaffolding, ground fault panel, airless spray equipment, personal protective equipment (PPE), aviation snips, nippers, rubber boots, shovel, disposal bin.

Sub-task**23.01 Builds enclosure.****Supporting Knowledge & Abilities**

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	no	NV	yes	yes	ND	yes	yes	yes	NV	NV
					23.01.01	knowledge of required materials					
					23.01.02	knowledge of personnel and material decontamination facilities					
					23.01.03	knowledge of construction techniques					
					23.01.04	ability to plan required enclosure					
					23.01.05	ability to build and maintain decontamination facilities					
					23.01.06	ability to construct required enclosure					
					23.01.07	ability to determine number of negative air units required based on size of enclosure built					

Sub-task**23.02 Prepares site for removal of asbestos.****Supporting Knowledge & Abilities**

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	no	NV	yes	yes	ND	yes	yes	yes	NV	NV
					23.02.01	knowledge of required tools and equipment					
					23.02.02	knowledge of proper location of hazardous materials signs					
					23.02.03	ability to use and maintain required safety and protective equipment					
					23.02.04	ability to obtain required equipment					
					23.02.05	ability to secure area					
					23.02.06	ability to notify appropriate personnel					

Sub-task**23.03 Removes asbestos.****Supporting Knowledge & Abilities**

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	no	NV	yes	yes	ND	yes	yes	yes	NV	NV
					23.03.01		knowledge of proper removal techniques				
					23.03.02		knowledge of requirements to use water				
					23.03.03		knowledge of decontamination procedures				
					23.03.04		knowledge of specialized equipment				
					23.03.05		knowledge of enclosure dismantling procedures				
					23.03.06		knowledge of disposal procedures of enclosure				
					23.03.07		knowledge of required negative air pressure				
					23.03.08		ability to carry out various asbestos removal techniques				
					23.03.09		ability to maintain required negative air pressure				
					23.03.10		ability to work with safety gear on				
					23.03.11		ability to apply lock-down sealant (encapsulant) to enclosure				
					23.03.12		ability to clean up site after removal (re-establish site)				

Sub-task**23.04 Disposes of asbestos materials.****Supporting Knowledge & Abilities**

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	no	NV	yes	yes	ND	yes	yes	yes	NV	NV
					23.04.01		knowledge of rules and regulations relating to disposal of asbestos materials				

Supporting Knowledge & Abilities

23.04.02	ability to obtain manifest
23.04.03	ability to obtain permit
23.04.04	ability to locate approved disposal site
23.04.05	ability to package asbestos materials as per regulations
23.04.06	ability to transport material to approved site

Task 24 Performs maintenance repair.

Related Components: Any substrate insulated with asbestos materials.
Materials: Sealants, disposal bags, tape, canvas, aluminum, mastics, lagging adhesive, amended water.

Tools and Equipment: Standard tool kit, HEPA (High Efficiency Particulate Absolute) vacuum, glove bag, scraper, wire brush, pump sprayer, hammer, chisel, personal protective equipment (PPE), aviation snips.

Sub-task

24.01 Identifies scope of work.

Supporting Knowledge & Abilities

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV
					24.01.01						
					24.01.02						
					24.01.03						
					24.01.04						

Sub-task**24.02** **Determines method of repair.****Supporting Knowledge & Abilities**

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV

24.02.01 knowledge of governmental rules and regulations

24.02.02 ability to safely remove asbestos using glove bags

24.02.03 ability to apply regulations to removal of asbestos

Task 25 **Encloses asbestos.***Related Components:*

Any asbestos contaminated substrates.

Materials: Dry wall, corner bead, caulking, plywood, screws, metal cladding, lumber (tongue and groove), plaster.

Tools and Equipment:

Power actuated tools, standard tool kit, drills, skill saw, personal protective equipment (PPE).

Sub-task**25.01** **Determines scope of work.****Supporting Knowledge & Abilities**

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV

25.01.01 knowledge of required precautions

25.01.02 ability to determine building and sealing method for (enclosure) containing and encapsulating asbestos

Sub-task**25.02 Builds asbestos enclosure.****Supporting Knowledge & Abilities**

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV

25.02.01 knowledge of required materials

25.02.02 ability to ensure enclosure is structurally sound and air tight

Task 26 Encapsulates asbestos.*Related Components:*

Any asbestos contaminated substrates.

Materials: Encapsulants (bridging and penetrating).

Tools and Equipment:

Airless sprayer, standard tool kit, personal protective equipment (PPE) including respirator.

Sub-task**26.01 Determines scope of work.****Supporting Knowledge & Abilities**

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV

26.01.01 knowledge of safety regulations

26.01.02 knowledge of governmental rules and regulations

26.01.03 ability to conduct visual inspection

26.01.04 ability to determine severity of condition

Sub-task**26.02 Sprays bridging or
penetrating encapsulant.****Supporting Knowledge & Abilities**

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV

- | | |
|----------|---|
| 26.02.01 | knowledge of governmental rules and regulations |
| 26.02.02 | knowledge of types of materials |
| 26.02.03 | knowledge of safety procedures |
| 26.02.04 | knowledge of types of spraying equipment |
| 26.02.05 | ability to operate spraying equipment |

BLOCK E**SPRAYING INSULATION MATERIALS**

Trends: Has become a specialized field in most jurisdictions.

Task 27 Sprays insulations.*Related Components:*

Turbines, tanks, refrigerator, structural steel, decking, piping, bulk heads, vessels, duct, breechings, parkades.
 Materials: Mineral fibre, ceramic fibre, calcium, urethane, polyethylene, cement, polystyrene, styrofoam, styrospan, fiberglass, cellulose, chicken wire, speed clips, fasteners, abrasives.

Tools and Equipment:

Spray pumps, airless sprayer, trowels, mixers, pin gun, stud welder, lacing hook/needle, thickness gauge, thermometer, standard tool kit, grinders, wire brushes, sand paper.

Sub-task**27.01 Determines materials and equipment required.****Supporting Knowledge & Abilities**

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	no	yes	NV	NV
					27.01.01		knowledge of types of spraying materials				
					27.01.02		knowledge of materials properties				
					27.01.03		knowledge of appropriate consistency of mixture				
					27.01.04		knowledge of purpose of application				
					27.01.05		knowledge of required personal protective equipment such as respirators, gloves and goggles				
					27.01.06		knowledge of potential hazards such as toxic fumes, sources of ignition				
					27.01.07		ability to interpret data sheets and specifications				
					27.01.08		ability to work in confined spaces				
					27.01.09		ability to insulate according to plans and specifications				

Sub-task**27.02 Prepares substrate.****Supporting Knowledge & Abilities**

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	no	yes	NV	NV
					27.02.01		knowledge of types required fasteners				
					27.02.02		knowledge of temperature requirements of substrate				
					27.02.03		knowledge of required tools				

Supporting Knowledge & Abilities

27.02.04	knowledge of site specific limitations
27.02.05	knowledge of substrate coating
27.02.06	knowledge of primers and their properties
27.02.07	knowledge of substrate condition
27.02.08	ability to correct substrate irregularities
27.02.09	ability to prime substrate

Sub-task

27.03 Protects surrounding work area.

Supporting Knowledge & Abilities

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	no	yes	NV	NV

27.03.01	knowledge of types of protective equipment
27.03.02	knowledge of required ventilation
27.03.03	ability to protect equipment

Sub-task

27.04 Applies fastening systems.

Supporting Knowledge & Abilities

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	no	yes	NV	NV

27.04.01	knowledge of types of fasteners
27.04.02	knowledge of abrasion techniques
27.04.03	knowledge of proper application of reinforcements such as chicken wire, road mesh, glass fabric, metal lathe

Supporting Knowledge & Abilities

27.04.04	knowledge of safety regulations
27.04.05	ability to use pin welder and stud welder
27.04.06	ability to install reinforcements according to specifications
27.04.07	ability to layout grid pattern
27.04.08	ability to operate abrasion equipment

Sub-task

27.05 Prepares material and equipment.

Supporting Knowledge & Abilities

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	no	yes	NV	NV
					27.05.01		knowledge of mixing procedures				
					27.05.02		knowledge of temperature ranges				
					27.05.03		knowledge of ratios, consistencies and cure times				
					27.05.04		knowledge of set up procedures				
					27.05.05		knowledge of expansions rates				
					27.05.06		ability to set-up equipment				
					27.05.07		ability to mix materials according to manufacturers' instructions				

Sub-task

27.06 Applies spray at pre-determined thickness and specifications.

Supporting Knowledge & Abilities

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	no	yes	NV	NV
					27.06.01	knowledge of spraying techniques					
					27.06.02	knowledge of specifications					
					27.06.03	knowledge of multi-layer applications					
					27.06.04	knowledge of types of spraying equipment					
					27.06.05	ability to measure thickness					
					27.06.06	ability to use spraying equipment					
					27.06.07	ability to trowel or tamp					

Sub-task

27.07 Tamps materials to required density using a tamping tool.

Supporting Knowledge & Abilities

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	no	yes	NV	NV
					27.07.01	knowledge of required density, consistency and thickness					
					27.07.02	knowledge of tamping techniques					
					27.07.03	knowledge of required equipment					
					27.07.04	ability to maintain consistency					
					27.07.05	ability to visually inspect for consistency of thickness					

Task 28 Sprays sealers and coatings.

<i>Related Components:</i>	Beams, turbines, tanks, refrigerator, structural steel, decking, piping, bulk heads, vessels, duct, parkades. Materials: Mastics, adhesives, laggings, cements, encapsulant, sealants, fire retardants, primers, finishes.
<i>Tools and Equipment:</i>	Spray pumps, airless sprayer, trowels, mixers, pin gun, stud welder, lacing hook/needle, thickness gauge, thermometer, standard tool kit, grinders, wire brushes, sand paper.
<i>Note:</i>	In some jurisdictions this task is limited to spraying adhesives and encapsulant.

Sub-task**28.01 Prepares materials and equipment.****Supporting Knowledge & Abilities**

<u>NF</u> yes	<u>NS</u> yes	<u>PE</u> yes	<u>NB</u> NV	<u>QC</u> yes	<u>ON</u> yes	<u>MB</u> ND	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> NV	<u>YK</u> NV
					28.01.01	knowledge of types of materials such as mastics, adhesives, and cement					
					28.01.02	knowledge of purpose of application					
					28.01.03	knowledge of properties and hazards of materials					
					28.01.04	knowledge of required spraying equipment					
					28.01.05	ability to select appropriate reinforcements					
					28.01.06	ability to prepare materials and equipment according to specifications and manufacturers' specifications					

Sub-task**28.02 Prepares insulated substrate.****Supporting Knowledge & Abilities**

<u>NF</u> yes	<u>NS</u> yes	<u>PE</u> yes	<u>NB</u> NV	<u>QC</u> yes	<u>ON</u> yes	<u>MB</u> ND	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> NV	<u>YK</u> NV
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Supporting Knowledge & Abilities

28.02.01	knowledge of required reinforcements
28.02.02	knowledge of bridging agents
28.02.03	knowledge of required vapour barriers
28.02.04	ability to apply reinforcement materials
28.02.05	ability to apply vapour barriers

Sub-task

28.03 Prepares un-insulated substrate.

Supporting Knowledge & Abilities

<u>NF</u> yes	<u>NS</u> yes	<u>PE</u> yes	<u>NB</u> NV	<u>QC</u> yes	<u>ON</u> yes	<u>MB</u> ND	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> NV	<u>YK</u> NV
28.03.01											
knowledge of types of coatings											
28.03.02											
knowledge of cleaning agents											
28.03.03											
ability to select appropriate coating											
28.03.04											
ability to apply abrasive coatings											
28.03.05											
ability to clean surface											

Sub-task

28.04 Protects work area.

Supporting Knowledge & Abilities

<u>NF</u> yes	<u>NS</u> yes	<u>PE</u> yes	<u>NB</u> NV	<u>QC</u> yes	<u>ON</u> yes	<u>MB</u> ND	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> NV	<u>YK</u> NV
28.04.01											
knowledge of requirements for protecting work area											
28.04.02											
knowledge of types of protective equipment											
28.04.03											
ability to practice good housekeeping											

Sub-task**28.05 Applies spray as per specifications.****Supporting Knowledge & Abilities**

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV

28.05.01	knowledge of required thickness and consistencies
28.05.02	knowledge of mixing procedures
28.05.03	knowledge of material properties such as shrinkage and drying time
28.05.04	ability to use mil thickness gauge
28.05.05	ability to use spraying equipment

Task 29 Maintains spray equipment.

Related Components: Spray pumps, hoses, nozzles, pressure fed sprayer, airless sprayer.
Materials: Cleaning agents, solvents.

Tools and Equipment: Standard tool kit, manufacturers' tools, tip cleaners, personal protective equipment (PPE).

Sub-task**29.01 Flushes/rinses equipment.****Supporting Knowledge & Abilities**

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV

29.01.01	knowledge of appropriate cleaning/flushing agents
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Supporting Knowledge & Abilities

29.01.02 knowledge of manufacturers' recommendations regarding cleaning of equipment

29.01.03 ability to acquire data from data sheet/label

Sub-task

29.02 Disassembles equipment.

Supporting Knowledge & Abilities

NF NS PE NB QC
yes yes yes NV yes

ON MB SK AB BC NT YK
yes ND yes yes yes NV NV

29.02.01 knowledge of disassembly procedures

29.02.02 knowledge of required tools

29.02.03 knowledge of proper lifting techniques

29.02.04 ability to keep track of parts

Sub-task

29.03 Cleans equipment.

Supporting Knowledge & Abilities

NF NS PE NB QC
yes yes yes NV yes

ON MB SK AB BC NT YK
yes ND yes yes yes NV NV

29.03.01 knowledge of parts requiring cleaning

29.03.02 knowledge of cleaning agents

29.03.03 knowledge of cleaning techniques

29.03.04 knowledge of manufacturers' recommendations

29.03.05 ability to remove and dispose of all residue

Sub-task

29.04 Re-assembles equipment.

Supporting Knowledge & Abilities

NF NS PE NB QC
yes yes yes NV yes

ON MB SK AB BC NT YK
yes ND yes yes yes NV NV

- 29.04.01 knowledge of re-assembly procedures
- 29.04.02 knowledge of plans and specifications
- 29.04.03 ability to visually check condition of equipment
after cleaning
- 29.04.04 ability to conduct operational check of
equipment

Sub-task

29.05 Stores equipment.

Supporting Knowledge & Abilities

NF NS PE NB QC
yes yes yes NV yes

ON MB SK AB BC NT YK
yes ND yes yes yes NV NV

- 29.05.01 knowledge of storage procedures
- 29.05.02 knowledge of storage area conditions (hot, cold,
wet)
- 29.05.03 ability to take appropriate care of hoses and
nozzles

BLOCK F

FIRE STOPPING AND SMOKE SEALS

Trends: *Increase in enforcement of regulations; improved developments in materials; greater recognition by industry; and, more technical.*

Task 30 Determines required fire stopping system.

Related Components: Walls, floors, ceilings, bulk heads, deck heads, roof, ventilation shafts, access shafts.
 Materials: Manufacturers' specifications, UL document.

Tools and Equipment: Flashlight, drawings, specifications.

Sub-task

30.01 Conducts site visit.

Supporting Knowledge & Abilities

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV
					30.01.01		knowledge of mechanical and electrical systems				
					30.01.02		knowledge of UL (Underwriters Laboratories Inc.) approved systems				
					30.01.03		knowledge of fire stopping systems				
					30.01.04		knowledge of architectural, mechanical and electrical drawings				
					30.01.05		knowledge of piping materials				
					30.01.06		knowledge of plans, specifications and building codes				
					30.01.07		knowledge of applicable fire codes				
					30.01.08		ability to conduct visual inspection				
					30.01.09		ability to locate and inspect fire barriers and walls				

Sub-task

30.02 Consults manufacturers' manuals and specifications.

Supporting Knowledge & Abilities

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	no	yes	yes	NV	NV

30.02.01 knowledge of types of manufacturers' manuals

30.02.02 ability to interpret manufacturers' specifications

Task 31 Installs fire stopping.

Related Components:

Penetration through walls, floors, roof, expansion joints, curtain wall.

Materials: Intumescent, wrap strips, caulking, mineral wool, cement, restricting collars, banding, foams, composite sheets, fasteners, washers, screws, metal strips, PPD (plastic pipe devices), liquid soap, caulking cement.

Tools and Equipment:

Sprayers, standard tool kit, banding tools, caulking gun, drills.

Sub-task

31.01 Prepares site.

Supporting Knowledge & Abilities

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	yes	yes	yes	NV	NV

31.01.01 knowledge of size and type of cavity to fill

31.01.02 knowledge of annular space

31.01.03 knowledge of UL approved systems

31.01.04 ability to take proper measurements

31.01.05 ability to identify manufactured system

31.01.06 ability to follow manufacturers' instructions

Supporting Knowledge & Abilities

- 31.01.07 ability to fill cavity according to size, shape
- 31.01.08 ability to install materials in accordance with manufacturers' specifications or building codes

Sub-task

31.02 Assesses need for sealing of perforations.

Supporting Knowledge & Abilities

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
yes	yes	yes	NV	yes	yes	ND	no	yes	yes	NV	NV

- 31.02.01 knowledge of materials
- 31.02.02 knowledge of penetrating items through fire barriers
- 31.02.03 knowledge of building expansion joints
- 31.02.04 knowledge of mechanical and electrical ventilation systems
- 31.02.05 knowledge of fire walls, curtain walls, fire stops and smoke seals
- 31.02.06 ability to determine perforations requiring fire stops

APPENDICES

TOOLS AND EQUIPMENT

airless sprayer	notchers
anchors	personal protective equipment
band saw	pin gun
band tightener	pneumatic tools
banding tools	power actuated tools
beader	pump sprayer
blow torch	rake
brake	respirator
calculator	rivet gun
caulking gun	rollers
chisel	rubber
combination machine	sand paper
crimper	scale ruler
drain plugs	scraper
drills	sewing machine
earth moving equipment	shears
easy edger	shovel
electric drill	showers
electric shears	skill saw
extension cords	sprayer
flare staple gun	spray pumps
foam gun	spraying equipment
glove bag	springs and bands
grinders	staple gun
hammer	strapping tools
HEPA (High Efficiency Particulate Absolute)	stud gun
vacuum	stud welder
hog ringer	tamper
knife	tape measure
lacing hook/needle	thermometer
lock former	thickness gauge
manufacturers' tools	tip cleaners
metal brake	trowels
mitre chart	t-square
mitre saw	water hoses
mixers	wire brush
negative air machine	

Standard Tool Kit

carpenter's square
chicken wire hook
dividers
end nippers
hammer
knives
paint brush
paste brush
pliers
pointer and gauging trowels

ruler
saws (keyhole and hand)
scissors
scratch all
screwdrivers
slicks
springs or bands
staple gun
tape measure
tin snips

ABBREVIATIONS

CCDA	Canadian Council of Directors of Apprenticeship
EHT	Electrical Heat Tracing
HEPA	High Efficiency Particulate Absolute
HRDC	Human Resources Development Canada
HVAC	Heating, Ventilation, and Air Conditioning
MSDS	Material Safety Data Sheets
PPD	Plastic Pipe Devices
PPE	Personal Protective Equipment
RFFRK	Reinforced Foiled Flame Retardant Kraft

BLOCKS AND TASKS WEIGHTING

BLOCK A OCCUPATIONAL SKILLS

	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	National Average
%	20	14	5	NV	5	12	ND	10	20	20	NV	NV	13%

Task 1 Determines administrative requirements.

	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
%	17	21	5	NV	40	25	ND	10	20	15	NV	NV	19%

Task 2 Determines production requirements.

	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
%	30	31	5	NV	40	25	ND	10	30	15	NV	NV	23%

Task 3 Determines site specific requirements.

	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
%	20	22	50	NV	10	25	ND	5	30	25	NV	NV	23%

Task 4 Checks substrate for readiness.

	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
%	20	19	5	NV	5	20	ND	45	10	25	NV	NV	19%

Task 5 Cleans up site after jobs.

	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
%	13	7	35	NV	5	5	ND	30	10	20	NV	NV	16%

BLOCK B
INDUSTRIAL APPLICATION

												National Average	
%	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
	32	32	48	NV	40	35	ND	30	45	25	NV	NV	36%

Task 6 Insulates for thermal applications.

%	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
	21	21	20	NV	20	25	ND	15	15	20	NV	NV	20%

Task 7 Fabricates insulation for tanks, vessels and fittings.

%	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
	23	17	25	NV	10	20	ND	20	15	15	NV	NV	18%

Task 8 Fabricates removable covers.

%	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
	10	8	10	NV	5	10	ND	15	5	5	NV	NV	9%

Task 9 Installs protective coverings.

%	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
	10	10	20	NV	25	10	ND	15	20	15	NV	NV	16%

Task 10 Applies sealants.

%	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
	7	7	4	NV	3	5	ND	10	5	10	NV	NV	6%

Task 11 Insulates for refractory applications. (1500° F +)

%	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
	7	6	4	NV	15	10	ND	5	5	5	NV	NV	7%

Task 12 Insulates for cryogenic applications. (-150° F to absolute zero)

	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
%	0	9	4	NV	15	10	ND	5	20	5	NV	NV	8%

Task 13 Installs underground insulating systems.

	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
%	8	8	4	NV	2	5	ND	5	5	5	NV	NV	5%

Task 14 Insulates for sound proofing.

	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
%	6	8	4	NV	2	3	ND	5	5	5	NV	NV	5%

Task 15 Applies fire proofing materials.

	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
%	8	6	5	NV	3	2	ND	5	5	15	NV	NV	6%

BLOCK C COMMERCIAL APPLICATION

													National Average
%	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
	25	32	40	NV	40	30	ND	20	20	25	NV	NV	29%

Task 16 Insulates plumbing systems.

	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
%	23	18	15	NV	20	20	ND	20	15	15	NV	NV	18%

Task 17 Insulates mechanical systems.

	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
%	20	23	20	NV	30	25	ND	20	20	20	NV	NV	22%

Task 18 Insulates HVAC (heating, ventilation, and air conditioning) systems.

	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
%	20	19	20	NV	25	17	ND	15	20	20	NV	NV	20%

Task 19 Insulates fittings.

	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
%	10	16	20	NV	5	20	ND	15	20	15	NV	NV	15%

Task 20 Installs finishing materials.

	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
%	14	17	20	NV	15	15	ND	15	20	20	NV	NV	17%

Task 21 Insulates for sound proofing.

	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
%	13	7	5	NV	5	3	ND	15	5	10	NV	NV	8%

BLOCK D ASBESTOS ABATEMENT

	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	National Average
%	10	8	2	NV	10	15	ND	20	10	10	NV	NV	11%

Task 22 Determines scope of work. (unique to this area of the trade)

	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
%	23	22	10	NV	10	25	ND	5	20	30	NV	NV	18%

Task 23 Removes asbestos in high risk conditions.

	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
%	23	21	0	NV	60	30	ND	50	60	20	NV	NV	33%

Task 24 Performs maintenance repair.

	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
%	17	21	5	NV	10	25	ND	15	5	20	NV	NV	15%

Task 25 Encloses asbestos.

	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
%	17	17	5	NV	5	5	ND	15	10	15	NV	NV	11%

Task 26 Encapsulates asbestos.

	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
%	20	19	80	NV	15	15	ND	15	5	15	NV	NV	23%

BLOCK E SPRAYING INSULATION MATERIALS

													National Average
%	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
	7	5	1	NV	2	3	ND	10	2	10	NV	NV	5%

Task 27 Sprays insulations.

	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
%	30	44	90	NV	50	50	ND	35	0	40	NV	NV	42%

Task 28 Sprays sealers and coatings.

	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
%	20	29	5	NV	30	30	ND	35	50	30	NV	NV	29%

Task 29 Maintains spray equipment.

	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
%	50	27	5	NV	20	20	ND	30	50	30	NV	NV	29%

BLOCK F

FIRE STOPPING AND SMOKE SEALS

												National Average	
%	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
	6	9	4	NV	3	5	ND	10	3	10	NV	NV	6%

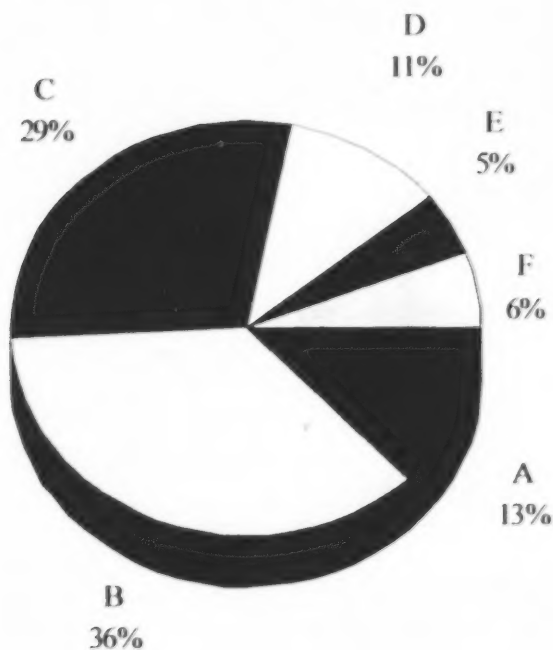
Task 30 Determines required fire stopping system.

	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
%	33	32	50	NV	30	50	ND	10	50	35	NV	NV	36%

Task 31 Installs fire stopping.

	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>QC</u>	<u>ON</u>	<u>MB</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
%	67	68	50	NV	70	50	ND	90	50	65	NV	NV	64%

PIE CHART*
Insulator (Heat and Frost)



TITLES OF BLOCKS

Block A	Occupational Skills	Block D	Asbestos Abatement
Block B	Industrial Application	Block E	Spraying Insulation Materials
Block C	Commercial Application	Block F	Fire Stopping and Smoke Seals

- The average percentage of the total number of questions on an interprovincial examination, assigned to assess each block of the analysis, as derived from the collective input from workers within the occupation from all areas of Canada. Interprovincial examinations typically have from one hundred up to one hundred and fifty multiple choice questions on each examination.

INSULATOR (HEAT & FROST) (2000)

TASKS SUB

BLOCKS

TASKS

TASKS

A	Occupational Skills	1. Determine administrative requirements.	1.01 Identify specific tasks and assignments.	1.02 Set work schedule.	1.03 Determine where requirements are met.	1.04 Compare documents and records as required.	1.05 Calculate required quantities of materials.	1.06 Obtain materials.
		2. Determine production requirements.	2.01 Determine material needs and quantities.	2.02 Estimate workday.	2.03 Approve for production of materials.			
		3. Determine cost requirements.	3.01 Determine cost requirements.	3.02 Determine required materials and equipment.	3.03 Determine cost requirements and materials.	3.04 Calculate required quantities.	3.05 Obtain materials.	3.06 Determine required quantities.
		4. Check a program for requirements.	4.01 Access material.	4.02 Identify material.	4.03 Check for material and equipment.			
B	Insulator Application	5. Check up and after jobs.	5.01 Determine of materials.	5.02 Insulate area.				
		6. Insulate for (temp).	6.01 Insulate for hot applications (213 to 242 F).	6.02 Insulate for cold applications (50 to 212 F).	6.03 Insulate for wet applications (213 to 242 F).	6.04 Insulate for dry applications (50 to 212 F).	6.05 Insulate for dry applications (213 to 242 F).	6.06 Insulate for dry applications (213 to 242 F).
		7. Fabricate insulation for walls, ceilings and floors.	7.01 Take required measurements.	7.02 Lay and measure for fitting.	7.03 Apply and measure for fitting.	7.04 Install and measure for fitting.		
		8. Fabricate insulation for walls, ceilings and floors.	8.01 Take required measurements.	8.02 Lay and measure for fitting.	8.03 Apply and measure for fitting.	8.04 Install and measure for fitting.		
C	Insulator Application	9. Insulate insulation for walls, ceilings and floors.	9.01 Insulate insulation for walls, ceilings and floors.	9.02 Insulate insulation for walls, ceilings and floors.				

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10. Apply system refractory applications (150 & 3 +)	10.01 Determine refractory type of system	10.02 Insulate refractory system		
11. Insulate for refractory applications (150 & 3 +)	11.01 Select proper insulation system (refractory, lamellar and LEVIT)	11.02 Apply insulation materials		
12. Insulate for cryogenic applications (150 & 3 + or other)	12.01 Prepare substrate	12.02 Apply insulation materials	12.03 Apply vapor barriers	
13. Insulate uninsulated existing system	13.01 Build forms for system	13.02 Determine insulation system or method	13.03 Apply insulation	13.04 Apply appropriate backfill
14. Insulate for wood paving	14.01 Insulate existing pav. piling	14.02 Insulate system paving	14.03 Insulate surface of system	
15. Apply for paving materials	15.01 Prepare existing system	15.02 Apply electrical pipe and conduits	15.03 Prepare structure components	
16. Insulate plumbing system	16.01 Insulate domestic hot water system	16.02 Insulate domestic cold water system	16.03 Insulate hot water piping system and vents	
17. Insulate non heated system	17.01 Insulate non heated system	17.02 Insulate other non heated system	17.03 Insulate refrigeration system	17.04 Insulate system non heated piping in system
18. Insulate HVAC (heating, ventilation, and air conditioning) system	18.01 Insulate duct and return ducts	18.02 Insulate supply and return ducts	18.03 Insulate ductwork	18.04 Insulate ductwork for ductwork

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INSULATOR (HEAT & FROST) (2000)

SUB-

TASKS

BLOCKS

TASKS

19.0 Develop layout for fringing	19.01 Apply adhesive and bonding to frame	19.02 Install insulation into panel divisions
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20. Install fringing materials

20.01 Prepare fringing materials	20.02 Install fringing to frame
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21. Insulate for wind proofing

21.01 Install insulation panels	21.02 Install insulation panels in ceilings and walls
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22. Determine scope of work (quantity and size of the trade)
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22.01 Review scope of work for insulation	22.02 Determine the applicable code and regulation	22.03 Determine the required thermal properties of insulation	22.04 Determine disposal method for insulation
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23. Review section of high and cold work
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23.01 Check section	23.02 Prepare and for removal of insulation	23.03 Remove section	23.04 Dispose of section materials
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24. Perform maintenance repair

24.01 Identify scope of work	24.02 Determine method of repair
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25. Insulate section

25.01 Determine scope of work	25.02 Install insulation on work
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26. Develop heat analysis

26.01 Determine scope of work	26.02 Apply's heating to providing insulation
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27. Apply insulation materials

27.01 Determine required material	27.02 Prepare material	27.03 Apply insulation	27.04 Prepare insulation equipment	27.05 Apply insulation	27.06 Apply insulation	27.07 Apply insulation
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INSULATOR (HEAT & FROST) (2000)

SUB

TASKS

TASKS

BLOCKS

28.01 Prepare materials and equipment	28.02 Prepare insulated substrate	28.03 Prepare insulated substrate	28.04 Prepare work area	28.05 Apply work as per specifications
29.01 Fabricate/assemble equipment	29.02 Disassemble equipment	29.03 Check equipment	29.04 Re-assemble equipment	29.05 Store equipment

30.01 Conduct site visit	30.02 Compile information, conduct site visit and report
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31.01 Prepare site	31.02 Assess and report on site performance
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28.01 Prepare materials and equipment

29.01 Prepare materials and equipment

30.01 Prepare site

Fire Arrester and Smoke Seps

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